
M5661 HiColor OLED EV-Board User Manual

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Revision History

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History

Date	Version	Description	Who
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1 System Features

- Support internal memory (NAND flash) and external memory card

- NAND flash type:



"M5661 Pen Drive
Flash-Card Support.xls"

- External memory card type: SD, MMC,

- Player:

- Playback source: internal memory or external memory card
- Support MP3 decoding:
 - ◆ Bit rate: 8K bps ~ 320K bps
 - ◆ Sampling rate: 8K ~48K
 - ◆ Channel: Stereo
- Support WMA decoding:
 - ◆ Bit rate: 5K bps ~ 320K bps
 - ◆ Sampling rate: 8K ~48K
 - ◆ Channel: Stereo
- Support IMA-ADPCM decoding:
 - ◆ Bit rate: 32K bps ~ 352 K bps
 - ◆ Sampling rate: 8K ~ 44.1K
 - ◆ Channel: Mono/Stereo
- Support Lyrics display from
 - ◆ LRC text file format
- Support artist / title / album display from
 - ◆ MP3 tag: V1.0, V2.2, V2.3, V2.4
 - ◆ WMA content metadata
- Support A-B repeat.
- Support adjustable playback rate.
- Support fast forward / backward playback.
- Support long file-name, file navigation
- Selectable repeat mode: no repeat, single repeat, repeat all, and random all.
- Selectable equalizer mode: Normal / Pop / Rock / Classic / Jazz / Bass / User EQ.
- Selectable virtual surround mode: enable or disable.

- Voice Recorder

- Record source: Line-In, or MIC, or FM
- Record target: internal memory or external memory card
- Selectable record mode: high quality, normal quality, or long-time mode
- Support the following MP3 encoding modes:
 - ◆ 256K bps, 44.1K sampling, stereo
 - ◆ 128K bps, 44.1K sampling, stereo
 - ◆ 64K bps, 22.05K sampling, stereo
 - ◆ 32K bps, 16K sampling, mono
 - ◆ 16K bps, 12K sampling, mono
- Support the following IMA-ADPCM encoding modes:
 - ◆ Sampling: 8K , Mono, Bit rate: 32K
 - ◆ Sampling: 11.025K, Mono, Bit rate: 44K
 - ◆ Sampling: 16K, Mono, Bit rate: 64K
 - ◆ Sampling: 22.05K, Mono, Bit rate 88K

- ◆ Sampling: 32K Mono, Bit rate 128K
- ◆ Sampling: 44.1K Mono, Bit rate 176k

- ◆ Sampling: 8K , Stereo, Bit rate: 64K
- ◆ Sampling: 11.025K , Stereo, Bit rate: 88K
- ◆ Sampling: 16K, Stereo, Bit rate: 128K
- ◆ Sampling: 22.05K, Stereo, Bit rate:: 172K
- ◆ Sampling: 32K Stereo, Bit rate 256K
- ◆ Sampling: 44.1K Stereo, Bit rate 352K

- The summary of file format with different source and quality mode

	Line In/ FM	MIC
High	MP3, 128K bps, 44.1K, stereo	MP3, 32K bps, 16K, mono
Normal	MP3, 64K bps, 22.05K, stereo	MP3, 16K bps, 12K, mono
Long time	MP3, 32K bps, 16K, mono	ADPCM, 32K bps, 8K, mono

- Support VAD in MP3 / IMA-ADPCM encoding mode.
 - ◆ The VAD sensitivity level is adjustable.(69 / 76 / 83 dBV)

- FM Tuner
 - Frequency: 87.5 ~108 MHz
 - Tuner can adjust step by step or automatically search.
 - User can set 10 preset bands
- JPG, and BMP file photo view
 - Support baseline JPG file
- USB host copy function
 - Support file navigation to manage (copy/delete) the file object between external USB flash disk and internal NAND flash disk. (copy, delete)
 - Support USB Mass Storage Class device.
- Clock
 - Time
 - Alarm
- LCD
 - Selectable contrast
 - Selectable backlight time
- Automatic power off
 - Selectable power off time
 - Enable or disable power off function in playback is selectable
- Multi-language
 - Support Unicode for metadata information display and filename.
 - User interface menu can select Traditional Chinese, Simplified Chinese, or English.

- Return to the environment last time automatically when power on

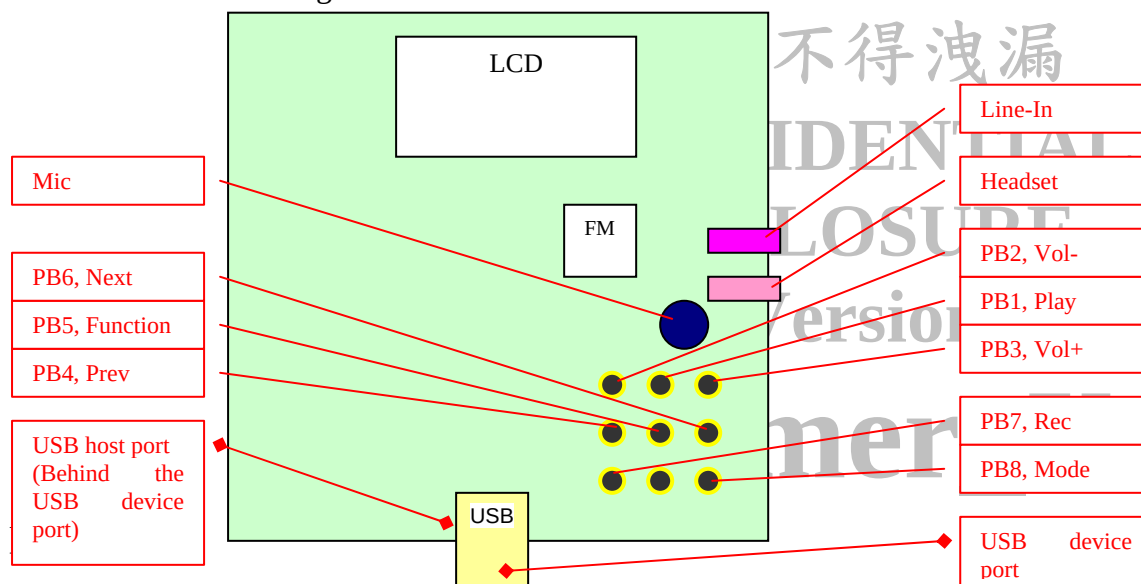
2 User Guide Overview

M5661 can operate in two types: USB flash disk / digital audio device (stand-alone).
If plugged to PC, it will become an USB flash disk. When it is stand-alone, it will become a portable digital audio device.

Buttons:

Button ID	Key number	Function
Vol-	PB2	Volume decrease
Play	PB1	PowerOn, Play, Pause, PowerOff
Vol+	PB3	Volume increase
Prev	PB4	Previous
Function	PB5	Command/Function
Next	PB6	Next
Rec	PB7	Recording/A-B repeat
Mode	PB8	Mode change

The EV board block diagram:



3 USB Device

Plug the device to PC's USB port the LCD panel will display the following icon according to current USB Device mode:

DRM-10-compliant firmware (version 1.60.xx series) supports both MTP mode and MSC mode (USB mass storage class). If the firmware just supports MSC mode (Version 1.50.xx series), it will just show up MSC icon on LCD.

3.1 MSC mode

When M5661 device (MSC mode) gets connected to PC, and is in idle state.



PC is writing data to M5661 device.

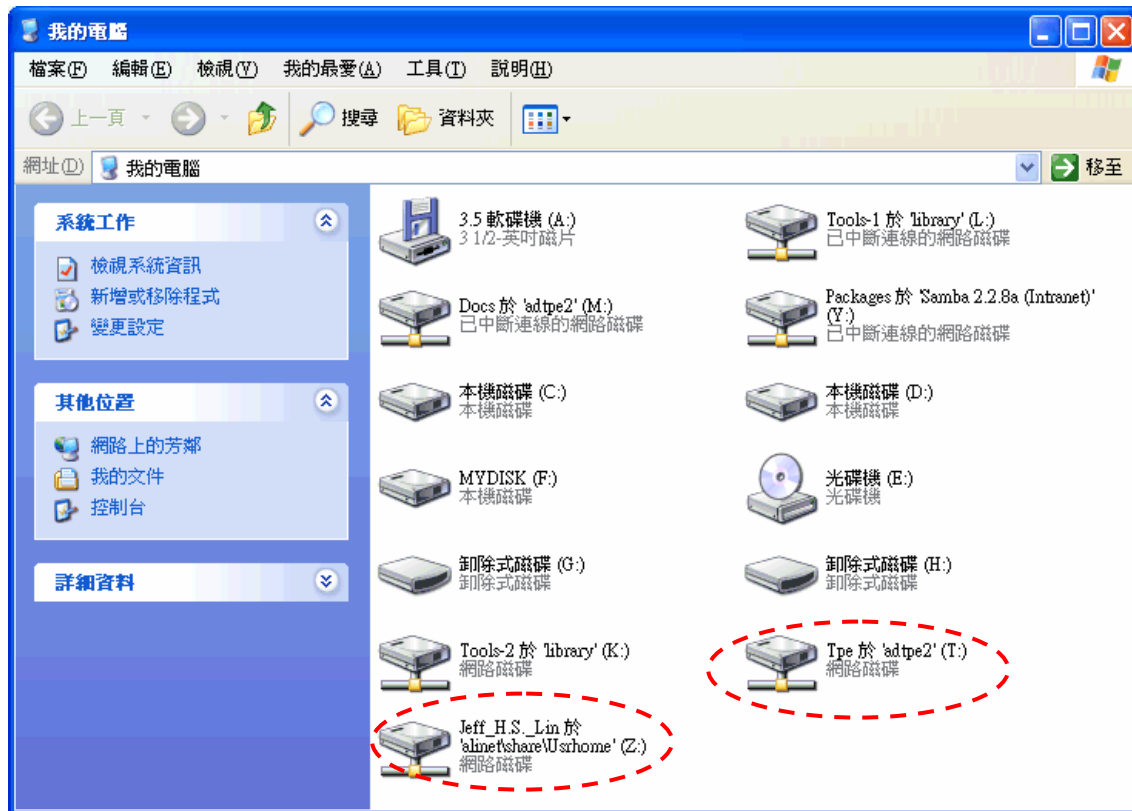


PC is reading data from M5661 device



And the removable disk(s) icons will show up on “My Computer”:
(If external Flash Disk enabled (MMC/SD), there will be two disk icons)

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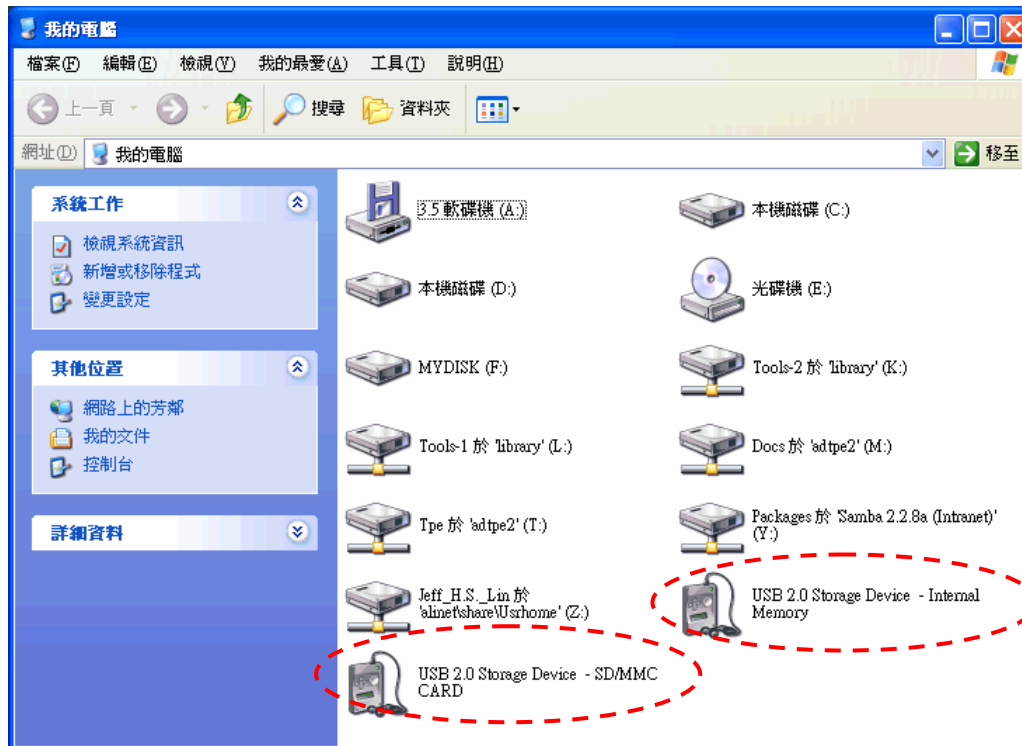


3.2 MTP mode.

When M5661 device (MTP mode) gets connected to PC (support XP only), and is in idle state.



And the portable media player icon(s) will show up on "My Computer":
(If external Flash Disk enabled (MMC/SD), there will be two icons)



Windows Media Player 10 will detect M5661 device and display icon(s) on the screen.
User can sync transfer the content to M5661 device.
(If external Flash Disk enabled (MMC/SD), there will be two icons)

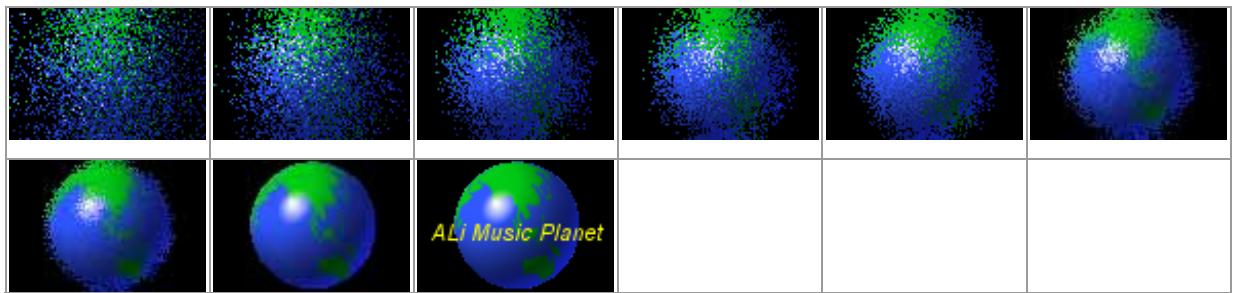


4 Stand-Alone Digital Audio Device

4.1 Power On/Off

Press the button Play (key1) can turn on the device, and press and hold this button will turn off the device.

When power on, the LCD panel will display the power-on animation:



Then it will go to the mode directly (Music, Voice, FM, Photo, File Manger, or Setup) when user powered off the device last time.

Note:

1. The device can memorize the last mode. If it was turned off from FM mode, it will return to FM mode when turning on.
2. The default mode is Music mode.

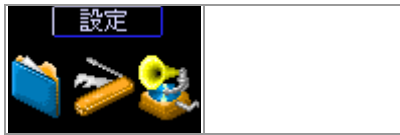
4.2 Change mode

Press the mode button (key 8) can change the mode, and the change sequence is as followed:

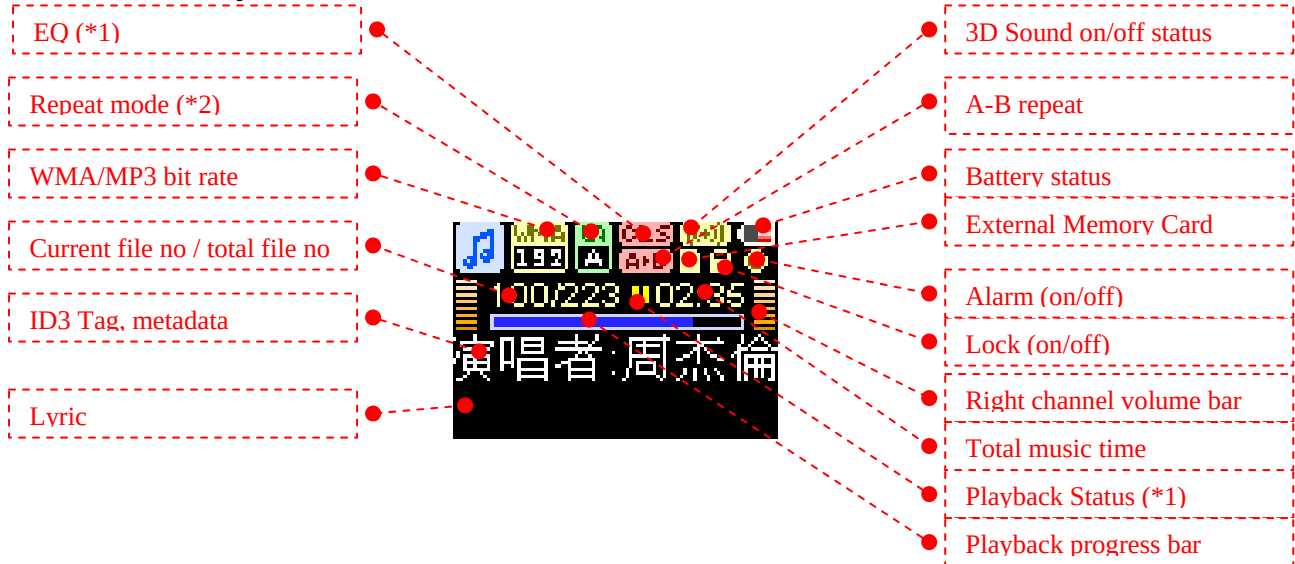
Music --- FM --- DVR --- Photo View --- File Manager --- System Setup

Layer 1	Layer 2
Music 	
FM 	
DVR 	
Photo 	
File Manager 	
Setup	

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5 Music Playback



*1 – EQ

Normal	NOR
Pop	POP
Rock	ROC
Classic	CLS
Jazz	JAZ
Bass	BAS
User EQ	USR

*2 – Repeat modes:

No repeat:	N
Single repeat:	1
Repeat all:	A
Random repeat all:	AE

* 3 - Playback status:

Stop	■
Playback	▶
Pause	

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Fast Forward »
Fast Backward «

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
Music 音樂模式 	Playback WMA 192 KLS (C) A+B 100/223 02:35 演唱者:周杰倫	File navigation 目錄 目錄一 檔案二 檔案三		

5.1 Playback

When the device status is stop or pause, press the button Play (key 1) to playback.

5.2 Pause

When the device status is playback, press the button Play (key 1) will pause it.

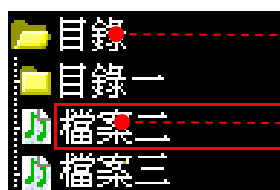
5.3 Stop

When the device status is playback or pause, long press the Button Menu (key 5) to stop music playback.

5.4 File navigation (Select folder/file)

Long press the Button Menu (key 5) will enter folder/file browsing. User can browse all files in the current folder. Using the button Prev (key 4) / Next (key 6) to move the cursor up/down to the target object, then press the button Play (key 1) to play the selected file.(i.e. play from the current folder which contains the selected file.). Press the button Menu (key 5) can abort browsing folder/file, and go back to the playback mode.

Press button Play at a folder will go into that folder.



Only supported music file will be displayed on the LCD, such as MP3 and WMA files.

5.5 Select file

Press the button Prev (key 4) / Next (key 6) to select previous / next file. User can select previous / next file in any status.

5.6 Fast backward/forward

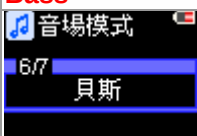
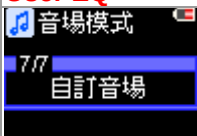
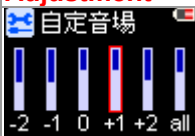
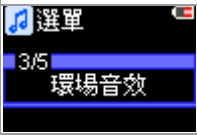
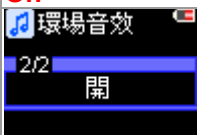
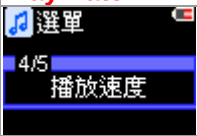
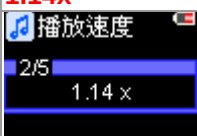
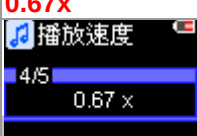
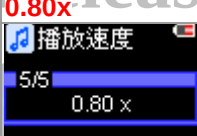
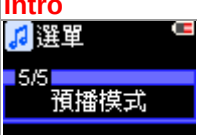
When the device status is in playback, long press the button Prev (key 4) / Next (key 6) will fast backward/forward the current file. Fast forward / backward will gradually speed up to 16 x when user doesn't release the Prev / Next.

FF can move to next file when reaching the end of file. FB doesn't support this feature.

5.7 Playback Sub-Menu

The topology of playback sub-menu function

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
Playback 	Repeat 	No Repeat 		
		Single Repeat 		
		Repeat All 		
		Random Repeat All 		
	EQ 	Normal 		
		Pop 		
		Rock 		
		Classic 		
		Jazz 		

		Bass 		
		User EQ 	Adjustment 	
	3D sound 	On 		
		On 		
	Play Rate 	1.00x 		
		1.14x 		
		1.33x 		
		0.67x 		
		0.80x 		
	Intro 	Adjustment 		

When the device is in Playback mode, press the button Menu(key 5) will enter playback sub-menu.

Press button Prev (key 4) / Next (key 6) to select an item, and press button Play (key 1) to

select it.

The items of sub-menu include: Repeat, Equalizer, 3D surround and Play rate, Intro.

(1) Change Repeat Mode

Go to the playback sub-menu and select Repeat mode, there are four repeat modes on the list:

No Repeat: Just play the current file. Stop playback when done.

All: Repeatedly play all files, (starting from current file)

Single: Repeatedly play current file.

Random repeat all: Repeatedly play a random file (randomly selected from all).

(2) Change Equalizer Mode

Go to the playback sub-menu and select Equalizer mode, there are seven Equalizer modes on the list: **Normal, Pop, Rock, Classic, Jazz, Bass, and User define.**

(3) Virtual 3D Surround

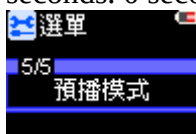
Go to the playback sub-menu and select Virtual Surround mode, user can enable or Disable the Virtual Surround function.

(4) Change Play Rate

Go to the playback sub-menu and select Play Rate item, user can adjust the play rate. The options of play rate are 0.67x, 0.80x, 1.00x, 1.14x, 1.33x.

(5) Intro playback

Intro playback is to play just a short period of content, instead of the entire file, let user can quickly scan all audio content in the disk. User can set the Intro period 0 ~ 15 seconds. 0 second means disable this function.



Intro-Period adjustment



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5.8 A-B Repeat

During playback, press the button Rec (key 7) to set the start point of the A-B repeat section, and press this button again can set the end point of the A-B repeat section. The device will play the section repeatedly. After that, press the same button again will cancel the A-B repeat mode.

5.9 Adjust Volume

In any playbackstate, press the button Vol- (key 2) to decrease the volume, or press the button Vol+ (key 3) to increase volume.

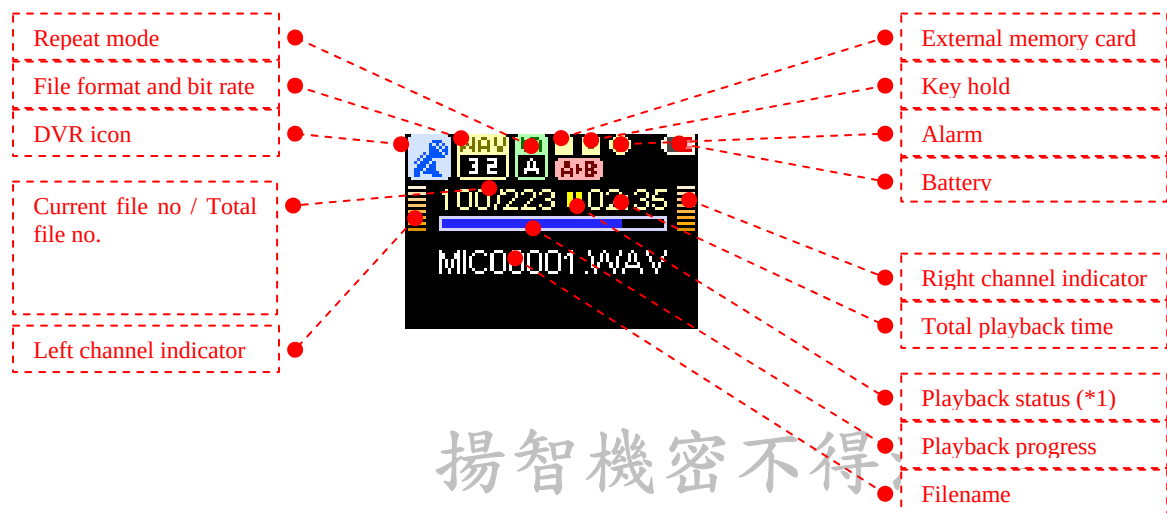
(step: 0 ~ 31)



6 DVR (Digital Voice Recording)

In DVR mode, user can record sound from Line In, MIC to digital files, and play the voice recording files.

Playback mode:



Recording mode (when pressing button Rec)



*1 – Playback status icons:

- Stop ■
- Playback ▶
- Pause ||
- Fast Forward ►►
- Fast Backward ◀◀

*2 – Repeat mode icons:

No repeat: 
 Single repeat: 
 Repeat all: 
 Random repeat all: 

*3 – In recording mode, this is the voice source icon.

Line In : 
 Mic : 

6.1 Record to a File

(1) General Recording Function

When the device status is stop or pause, press button Rec (key 7) will start recording. During recording, press button Rec (key 7) can pause it, and press the same button (key 7) again will continue recording. In the end, press button Menu (key 5) to stop recording and save the recording file.

(2) The Recording Folder and Filename format

The recording file will be saved in different folders, according to the recording quality and voice source.

For example, the FM recording files will be saved in folder “\FMIN”.

And, the recording filename will contain prefix to indicate the voice source, serial number, and file type.

The unified filename format is,

"MIC" / "LINE" / "FM" + series number + ".MP3" / ".WAV".

Such as,

“MIC0001.WAV”, “MIC0002.MP3”, “LINE0003.WAV”, “FM00001.MP3” ...

(3) Auto Insert Recording Serial Number Name.

The serial number of recording filename increases every time. When filename already exists, it will search for next available serial number to make up its filename.

(4) VAD Recording Function

When the recording voice is quieter than background sound, the device automatically pauses recording and the icon ● will disappear. Then, if the recording voice is louder than background sound, it will automatically record and Blink the item ● again. The background sound means that the first sound after pressing the button Rec (key 7).

6.2 DVR Recording Sub-Menu

When the device status is stop, long press the button Rec (key 7) will enter the DVR sub-menu. Then press button Prev (key 4) or button Next (key 6) to move item, and press button Play (key 1) to select it or press button Menu (key 5) to exit it. The items of sub-menu are: Source, Quality and VAD.

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
DVR 錄音機 	DVR playback 100/223 02:35 MIC00001.WAV			
		Source 選單 1/3 錄音來源	MIC 錄音來源 1/2 麥克風	
	DVR Record 02:35 MIC00001.WAV		Line-In 錄音來源 2/2 外部輸入	
		Quality 選單 2/3 錄音品質	Adjustment 錄音品質 4 低 高	
		VAD Off 選單 3/3 VAD 功能	VAD 功能 1/2 關	
			VAD On VAD 功能 2/2 開	

(1) Change the Source

Go to the recording sub-menu and select source item. Under this item, user can select “Line In” or “Mic” as the source.

Voice source 選單 1/3 錄音來源	MIC 錄音來源 1/2 麥克風
	Line-In



(2) Change the Quality

Go to the recording sub-menu and select quality item. Under this item, user can select the quality degree. (4 degrees)



(3) VAD Function Selection

Go to the recording sub-menu and select VAD item. Under this item, user can select whether using VAD (voice active detection) function



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6.3 Play a recorded file.

The operation of playback is similar to music playback mode. Press button Menu will go into DVR Playback Sub-Menu, to change Repeat mode, Intro Playback Period, and Play Rate (see the Music Playback).

7 FM Radio

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
FM	FM playback	Preset Edit		
收音機	STEREO 98.9 MHz	儲存電台 01 02 03 04 05 98.9 MHz		

7.1 A

Adjust Frequency

Press button Prev (key 4) to decrease the frequency, and press button Next (key 5) to increase

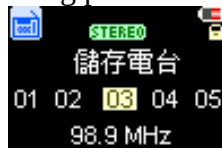
the frequency. Each step is 0.1 MHz.

7.2 Automatic Search

Long press button Prev (key 4) will decrease the frequency and search a radio station automatically. Long press button Next (key 6) will search band will increase the frequency to search a radio station.

7.3 Edit Preset Frequency

Long press function key (key 5) and the LCD panel will display preset number and frequency.



As the operation of “Adjust Frequency” or “Automatic Search”, to select a frequency, and press the button Rec (key 7) to save the frequency to current preset number. After that, the preset number will go to the next automatically, and let user to save next preset frequency. If user want to edit specific preset number, press button Play (key 1) to change the preset number. Finally, press the Button Menu (key5) to close the edit mode.

7.4 Select Preset Frequency

After edit preset frequency, user can change the frequency directly by select the preset number. Just press the button Play (key 1) to select the preset number.

7.5 Adjust Volume

In any state, press the button Vol- (key 2) to decrease the volume, or press the button Vol+ (key 3) to increase volume.

8 Photo View

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
Photo	Source disk	File navigation		
圖片模式 [圖標] [圖標] [圖標]	選擇來源 內建快閃碟 MMC / SD	目錄一 目錄一 檔案二 檔案三		

Only supported picture file will be displayed on the screen. (BMP and JPG files)

Press button Next / Prev to select the photo file, then press button Play to view the photo. Press Play at a folder will go into it.

9 File Manager

The topology:

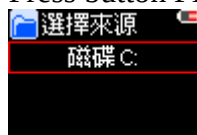
Layer 1	Layer 2	Layer 3	Layer 4	Layer 5
File manager	Source disk	Partition	Function	
			File navigation	

Select a source disk from menu

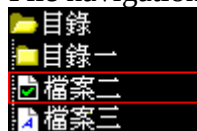


Select a partition from the source disk

Press button Play will enter file navigation, press button Menu will enter function menu



File navigation:

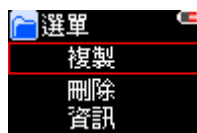


Button Next / Prev: move to the object

Button Vol+: to check (select) the file object.

Button Play: go into the folder in the current object is a folder.

Button Menu: go into function menu, to Copy / Delete / View file information.



Press button Menu again will cancel the operation

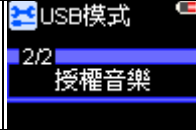
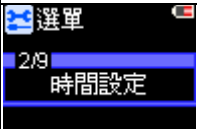
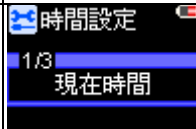
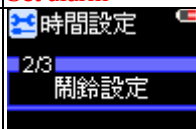
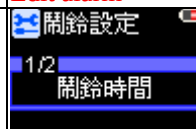
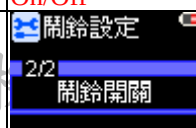
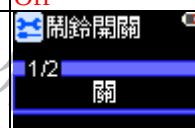
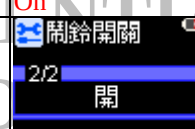
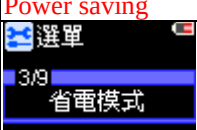
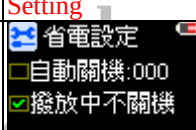
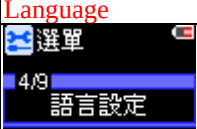
Press button Play will perform the selected function.

10 Setup

In setup mode, user can change the system settings. The common operation of this mode is to press the button Play (key 1) to select, press the button Menu (key 5) to cancel, and press the

button Prev (key 4) or the button Next (key 6) to move item.

The topology of System Setup menu

Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6
Setup	USB mode	Pen drive (MSC mode)			
					
		DRM download (MTP mode)			
					
	Time	Set clock	Adjustment		
					
		Set alarm	Edit alarm	Adjustment	
					
			On/Off	Off	
					
				On	
					
	Power saving	Setting			
					
	Language	Chinese Tran			
					
		Chinese Simp			
					
		English			

	Display	Contrast	Adjustment		
		Backlight	Adjustment		
	Record	Source	Mic		
			Line-In		
		Quality	Adjustment		
		VAD	Off		
			On		
	System Tool	Format	Quick format	No	
				Yes	
			Full format	No	
				Yes	

		Default	No		
			Yes		
		System Info	Information		
	User EQ	Adjustment			
	Storage	Internal			
		SD / MMC			

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10.1 Usb Mode

(1) Pen Drive

Select “USB Mode→Pen Drive”, the device will act as a USB pen drive when plugging into USB port.

(2) DRM Download

Select “USB Mode→DRM Download”, the device will act as a MTP device when plugging into USB port. It is used to download the Janus-DRM-protected (Digital Right Management) media files and license through WMP 10(Windows Media Player 10), and it only supports Windows XP SP1 above.

10.2 Time

(1) Adjust

Select “Time→Adjust”, and the LCD panel will display current time.



Press the button Prev (key 4) or button Next (key 6) to move cursor, and then press the button Vol- (key 2) / Vol+ (key 3) to change the value. The time is set while adjusting. In the end, press the button Play (key 1) or the Button Menu (key 5) to return to Setup menu.

(2) Alarm

Select "Time→Alarm→Adjust", and the LCD panel will display current alarm time.



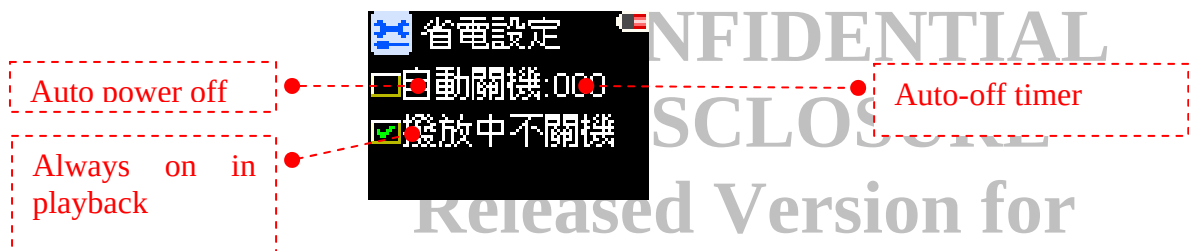
Press the button Prev (key 4) / Next (key 6) to move cursor, and then press the button Vol- (key 2) / Vol+ (key 3) to change the value. The alarm time is set while adjusting. In the end, press the button Play (key 1) / the Button Menu (key 5) to return to Setup menu.

Select "Time→Alarm→On/Off→On" to enable the alarm function; or select "Time→Alarm→On/Off→Off" to disable the alarm function.

When the alarm function is turned on, the LCD panel will display alarm icon 

10.3 Power

Select the power item, and the LCD panel will display as follows:



Auto-Off: Auto Power Off setting

Press button Prev (key 4) / Next (key 6) to move cursor, and then press the button Vol- (key 2) / Vol+ (key 3) to change the value. If user adjust the number to "020", it means the device will power off automatically if the user doesn't press any key in twenty minutes. When the Auto-Off timer expires, system will check the item "Always on in playback". If this item is checked and the device is playing songs, system won't power off the device. This setting is useful for sleeping mode.

When user wants to enjoy music while sleeping, and automatically power off the device when all songs are played out. He can set "Auto Off" timer, and checked the flag "Always on in playback"

10.4 Language

User can select language to change the system menu and information display. The current EV board supports three kinds of languages including English, Chinese (Trad.), Chinese (Simp).

10.5 Display

(1) Contrast

Select “Display→Contrast”; press button Prev (key 4) / Next (key 6) to change contrast, and then press the button Play (key 1) or the Button Menu (key 5) to return to Setup menu.



(2) Backlight

Select “Display→Backlight”; press the button Prev (key 4) or button Next (key 6) to change the backlight time, and then press the button Play (key 1) or the Button Menu (key 5) to return to menu.

10.6 Recording

(1) Recording Source

Select “Record→Source→Line In” to set recording from “Line In” input;
Or select “Record→Source→MIC” to set recording from device’s built-in microphone.

(2) Record Quality

Select “Record→Quality→Long Time” for voice quality and smaller file size.
Select “Record→Quality→Normal Quality” for radio quality and normal file size.
Select “Record→Quality→High Quality” for CD quality and bigger file size.

(3) VAD functional selection

Select “Record→VAD” to turn on/off VAD function.

10.7 Sys Tools

(2) Format

Select “Sys Tools→Format→Quick” to quickly format;
Select “Sys Tools→Format→Complete” to completely format as the FAT16 file system.

(3) Reset

Select “Sys Tools→ Reset” to reset the portable audio player to the default setting.

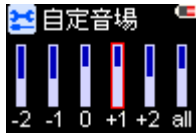
(4) System Info

Select “Sys Tools→System Info” to check the system information: Firmware version, Chip version, and free space of the internal memory.

10.8 Custom EQ

Select the “Custom EQ” item to adjust the custom EQ. Press the button Prev (key 4) / Next

(key 6) to move cursor, and then press the button Vol- (key 2) / Vol+ (key 3) to change the value.



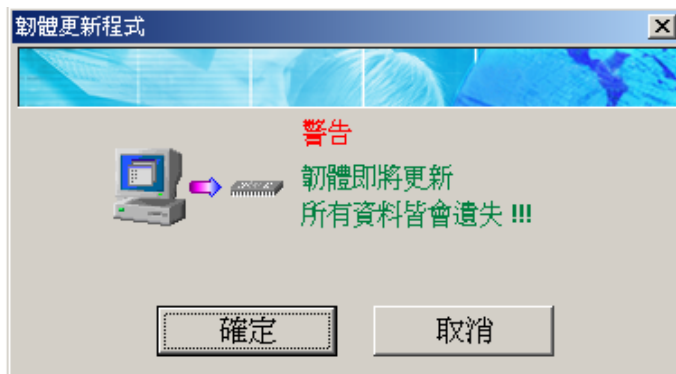
10.9 Storage

Select “Storage→Internal” to playback from or record to device’s internal memory. Select “Storage→SD/MMC Card” to playback from or record to device’s external SD/MMC card. When the device is selected to use the external memory card to playback or recording, the LCD panel will show a disk icon (📁) to indicate that system is using external memory card.

11 Firmware Upgrade (End-User)

11.1 “End-User Firmware Upgrade” utility

User can upgrade the firmware binary by the “End-User Firmware Upgrade” utility



1. If there is no such device connected on the USB host port, a warning message will show .



2. If more than one device connected on the USB host, a warning message will show .



- This tool only burning one device every time. Confirmation dialog box will ask user to begin firmware upgrade process.



- After clicking the [Yes], the firmware upgrade will proceed. When the firmware upgrade process finishes, a message box will display.



The new firmware won't take effect until user re-plugs the device to PC.

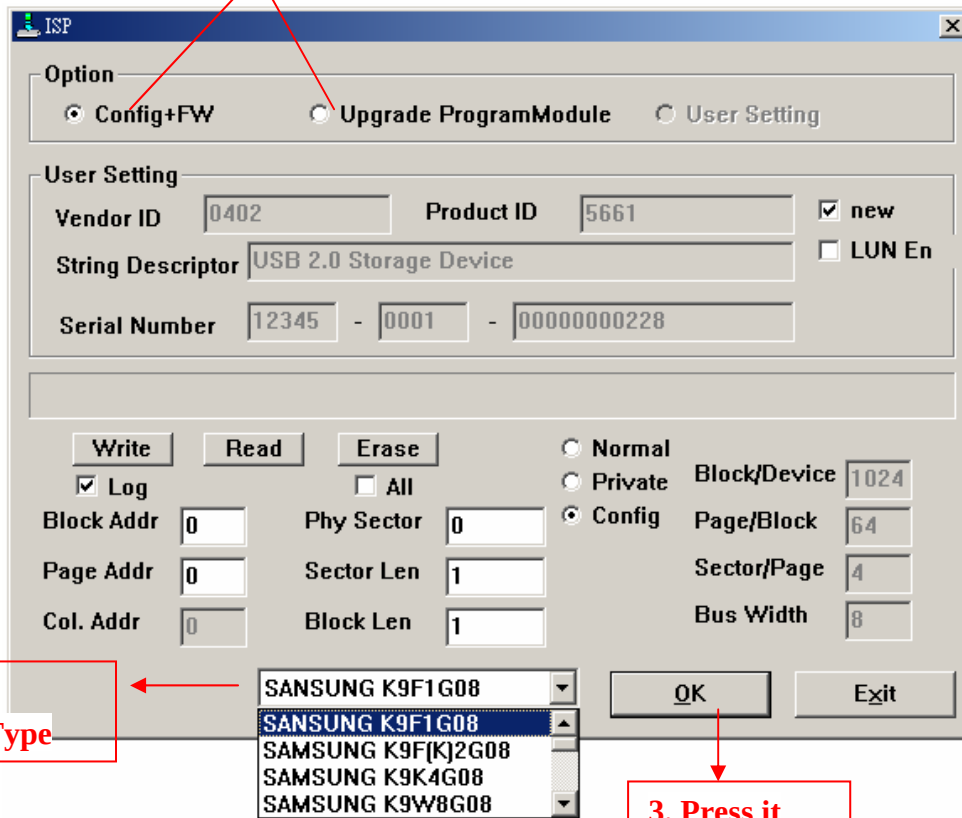
12 Firmware Upgrade (Engineering)

This is a firmware Upgrade utility for engineering purpose (User can change some

configurable information before burning the firmware binary to the M5661 device)

Step1.

1. Select Config + FW or Upgrade ProgramModule only

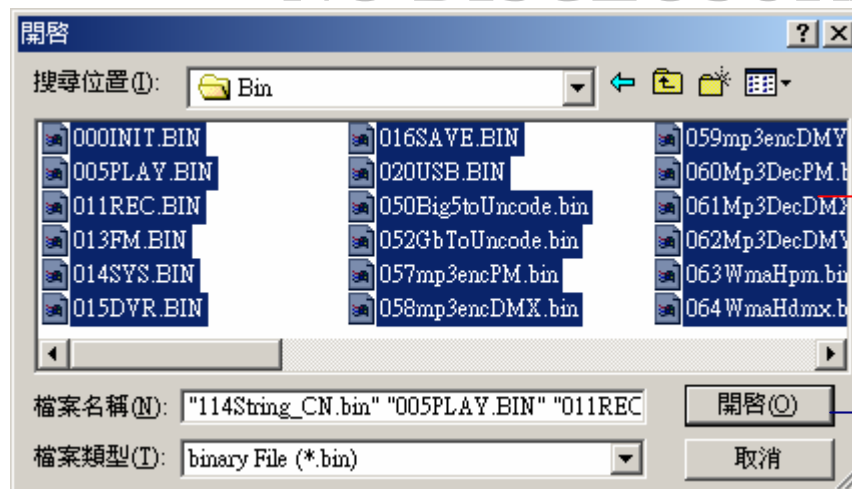


2. Select Nandflash Type

3. Press it

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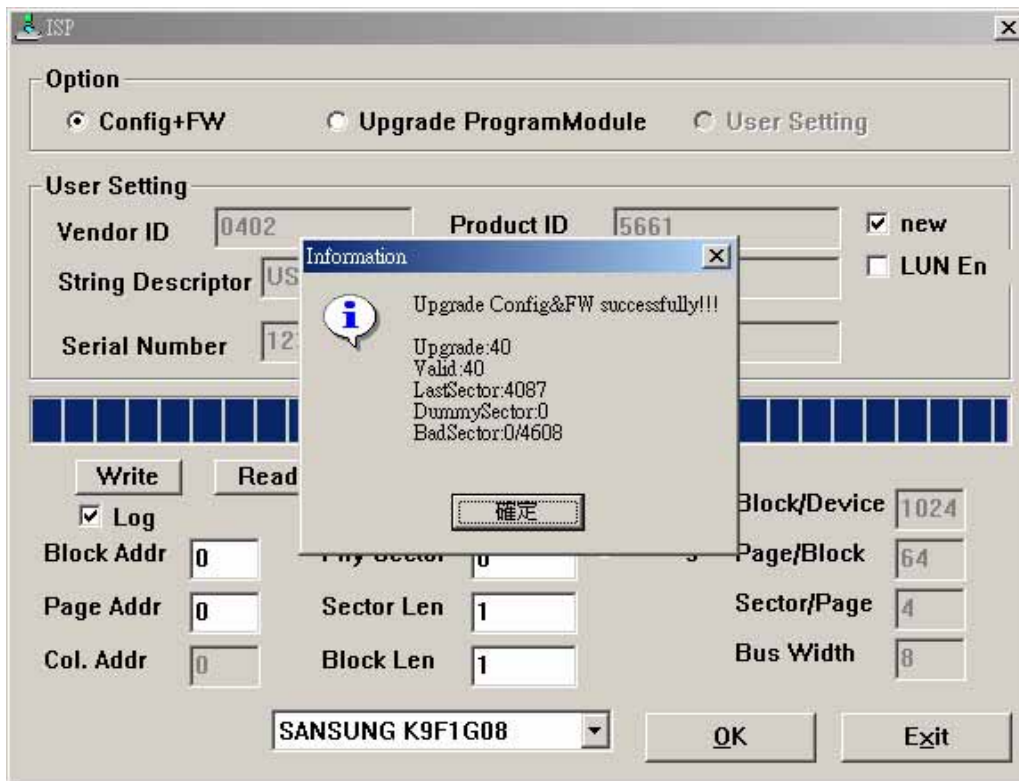
Step2.



Select Source Code

Press it

Step3.



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